

Patent claims

1. A circuit arrangement having a voltage link converter, which contains an intermediate-circuit capacitor (9) and switching paths (6a to 6e), which are arranged in parallel therewith and have series-connected switching elements (7a to 7e and 8a to 8e), a short-circuit thyristor (11) being provided as protection against short-circuit currents and overvoltages,

characterized in that

a short-circuit protection arrangement (10), comprising a parallel circuit of the short-circuit thyristor (11) with pairs of series-connected protective diodes (12a to 12e and 13a to 13e) which conduct in opposition to said short-circuit thyristor (11), is connected to the intermediate-circuit capacitor (9) and to the switching paths (6a to 6e), in that the short-circuit protection arrangement (10) is connected in parallel with the intermediate-circuit capacitor (9), and in that in each case a connection point between two series-connected switching elements (7a to 7e and 8a to 8e) in a switching path (6a to 6e) is connected to in each case a connection point between two series-connected protective diodes (12a to 12e and 13a to 13e) of the short-circuit protection arrangement (10).

2. The circuit arrangement as claimed in claim 1, characterized in that the short-circuit protection arrangement (10) is only connected to the intermediate-circuit capacitor (9) and to the switching paths (6a and 6b) of the power supply system side.

3. The circuit arrangement as claimed in claim 1, characterized in that the short-circuit protection arrangement (10) is only connected to the intermediate-circuit capacitor (9) and to the switching paths (6c to 6e) of the load side.

4. The circuit arrangement as claimed in one of claims 1 to 3, characterized in that the switching elements (7a to 7e and 8a to 8e) in the switching paths (6a to 6e) are 5 IGBTs.

5. The circuit arrangement as claimed in one of claims 1 to 4, characterized in that the short-circuit protection 10 arrangement (10) is connected to the intermediate-circuit capacitor (9) via additional protective diodes (14, 15) arranged in two connecting lines, the additional protective diode (14) in the first connecting line conducting in opposition to the 15 additional protective diode (15) in the second connecting line.

6. The circuit arrangement as claimed in one of claims 1 to 5, 20 characterized in that the short-circuit thyristor (11) has associated current-limiting components.